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A FEW THOUGHTS

Regarding

Calgary's Transportation System

(Read Carefully)

By

FEDERATED AUTOMOTIVE INDUSTRIES
CALGARY

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CITY BUS TRANSPORTATION TODAY AND TOMORROW

As a Citizen of Calgary, you are vitally interested in the type of Civic Transportation we will have in the years to come.

Here are some of the questions, you, along with the rest of us, will have to determine to our satisfaction.

1. Do you want a more beautiful City by eliminating ugly network of overhead wires and thousands of unnecessary poles?
2. Do you wish to save a huge Capital outlay?
3. Do you wish our transportation to be flexible under all conditions?
4. Do you want our Transportation system to be economical, easily replaced and kept up to other modern Cities?

A modern city should not clutter up its streets with overhead wires and a lot of poles. The trolley coach does this to a greater extent than the street car because it takes four wires overhead instead of two. In addition, a trolley coach cannot operate satisfactorily on a narrow street.

The trolley coach is a cross between a street car and a gas bus, and electrical power companies favour it because it necessitates the purchase of electrical power to operate the same. It is common knowledge that the electrical street car is on its way out. For years now interurban lines have been torn up and disbanded because the public have demanded the use of the more modern vehicle known as a gas or diesel bus, which operates more economically without tracks and overhead wires. The trolley coach was invented many years ago and since that time has been considerably improved, but the small number in use on the North American Continent compared with the large number of gas buses and diesel buses in use on the same continent, would indicate that transportation companies in Canada and the United States generally have not seen fit to accept the trolley coach as an equal of the gas bus which leads all other vehicles in modern design, economy and flexibility.

The trolley coach is an expensive vehicle. It costs somewhere between twenty-one and twenty-three thousand dollars laid down in Calgary. It requires wide streets to operate on. It cannot operate on any street without the installation of four overhead wires strung up across the street supported by strong poles with intricate and costly overhead intersections. The cost of installation of such overhead wiring, together with poles and feeder wires, is estimated to be \$20,000.00 per mile and possibly more, depending upon the number of intersections. (Edmonton, Alberta, shows a cost of \$25,140.00 per mile for this work.) The trolley coach requires the building and installation of sub-stations, the same as street cars do. They are not flexible and can run only on streets where the wires are installed. Therefore, in a growing community, where changes are continuously required, the gas or diesel bus is more suitable. If it is economical to do away with street car tracks, then it is more economical to do away with overhead wires and sub-stations and unsightly poles.

Some electrically-minded people, thinking mainly of the sale of power, will discuss power costs, but do not add to that cost the price of, and the cost of, maintenance and depreciation of sub-stations and overhead wires, without which no power can reach a trolley coach, and which cost is properly part of the cost of electric power.

Another objection to the trolley coach is that its high cost necessitates a long write-off period. Because of this it would have to be used for many more years than a small inexpensive gas or diesel bus. In these modern days an expensive vehicle which has to be written off during a long term of years is not beneficial to transportation. The simple reason is that it becomes obsolete before it is fully depreciated. In other words, its life is too long, having regard to the speed of advancement and improvement of the present age. The continual modernization of the automobile, which includes diesel and gas buses, leads all other vehicles in the race for perfection, and there is no automobile or other gas vehicle which is five years old which does not begin to look like Noah's Ark beside a new one.

This has its effect on all other vehicles, and it is reasonable to expect that post war improvements in design and perfection will revolutionize vehicles of all kinds. Therefore, if you want riders you must keep your vehicles modern, and to keep them modern you must buy them at as low cost as possible in order that they may be written off and fully depreciated within a period of not more than five years. By doing this you place yourself in the position of being able to dispose of the old and buy the new at least every five years if necessary. For example the gas turbine engine and other recent mechanical inventions are most likely to revolutionize transportation within five years after the war. Many new and cheaper fuels are being experimented with for the operation of the gas engine.

We must not allow ourselves, by a costly error, to be prevented from taking advantage of the improvements that are bound to follow the declaration of peace. The trolley coach costs from twenty-one to twenty-three thousand dollars, and overhead wiring costs approximately \$20,000.00 per mile. If the life of a trolley coach is ten years, it would have to be written off at the rate of \$2,000.00 per year to fully depreciate it in ten years, and this does not take into consideration the additional write-off in connection with expensive overhead wiring, poles, sub-stations, etc. A gas or diesel bus at a cost of \$9,000.00 to \$14,000.00 can be written off in five to seven years at \$2,000.00 per year. Then too, the gas or diesel bus has a high resale value to small rural towns, but there is no such market for a depreciated trolley coach.

It may not be necessary at this particular period to try very hard to obtain riders. However, this is an abnormal war period. Today many people have no cars, nor have they gasoline or rubber, but when this war is over they will have them again, and will then refuse to ride on any transportation system that isn't modern. This may spell financial difficulty for a system which has the wrong type of vehicle.

The City of Detroit and the City of Buffalo bought the small and more inexpensive gasoline bus. Detroit has proven them to be economical and successful and the people like them. Detroit is a municipally owned operation. Buffalo did likewise and Buffalo is a privately owned operation.

There are many other Cities which have done the same since, but these two cities were more or less pioneers in the use of the small vehicle.

Detroit now operates 2,181 gas buses. The population of Greater Detroit is nearly two and a half million. If Detroit uses small vehicles satisfactorily, it is no wonder small cities demand them. Detroit also operates street cars and at one time operated trolley coaches, but has discontinued the use of the trolley coach.

City passenger loads differ each hour throughout the day. In the morning, when everyone is going to work, there is what is known as a peak condition, and the vehicle will be crowded. In the afternoon when everyone is going home, there is another peak condition. This morning peak and afternoon peak each last anywhere from one hour to three hours, depending upon the local situation and as to whether there are staggered hours in the factories. In between these peak hours, there is the off-peak condition when the buses carry shoppers and other riders, who do not ordinarily travel in large numbers. With a large vehicle, which would seat forty, or fifty, or sixty people and probably stand thirty or forty more, the cost per mile is greater than the operating cost of a small vehicle.

Therefore only in peak hours can a large vehicle operate at a profit.

In off-peak hours, the large vehicle operates at a loss, because it is comparatively empty. It has not enough passengers per mile to pay its way and it cannot be cut in half to operate it in the off-peak hours. The small vehicle can be run during the off-peak hours at a profit because it doesn't require the same number of passengers per mile to pay its way and in peak hours a few extra small buses can be used to carry the load. In other words, run more of the vehicles in peak hours than in the off-peak hours and give faster service. Some of the older companies who still operate street cars and have no small ones, cut the service in the off-peak hours and run the large vehicles every twenty minutes or every half hour in the off-peak hours and probably run them every ten minutes in the peak hours, but this discourages riders. It is maintained in any city that a service should be built up, rather than cut. In lean hours a fifty-two passenger street car, to operate at a profit might have to operate on a half hour schedule, whereas a twenty-five passenger bus could operate on a fifteen minute schedule without loss. In these days, people demand service and the operators of a transportation system must not only consider economy, but, with it, the frequency of service.

Some Electrical men state that overhead wiring can be written off in twenty years, others state overhead wiring should be written off in twelve years. This is important. Compare this with other information that has been furnished, that the trolley coaches should be written off in ten years and trolley wires in four years. It is not difficult to figure the cost. If a gasoline bus costs \$9,000.00 and is written off in five years, the cost of depreciation on the bus is \$1,800.00 per year and by the end of five years, there is enough money in the bank to buy a new one. If City Officials then find no need of purchasing a new bus, they can of course operate with a bus fully written off, and at any time they choose to buy a new one, the money is lying in the Bank to make the purchase. If a trolley coach sells for \$20,000.00 plus overhead wiring at \$20,000.00 per mile and say written off in ten years, there is a minimum of \$2,000.00 a year cost of depreciation on the trolley coach alone, without taking into consideration the overhead wiring or substations. However, the trolley coach isn't written off for ten years or more, whereas the gas or diesel bus is written off in five years.

Those who represent or operate trolley coaches might be asked to present a statement showing the number of cities in which trolley coaches are situated at the present time. All through the States where trolley coaches are used in any quantity, a power company is operating the transportation system. Even at that, it will be found that numerous power companies are using the gas and diesel buses, and if a survey were made, we are confident Power Companies alone are using far more gas and diesel buses than trolley coaches. Gas and diesel buses outnumber trolley coaches in Canada forty to one.

The Montreal Tramway Company, in Montreal, installed seven trolley coaches in 1936, but they have never bought any more.

However, we are advised that they have since bought three hundred and forty-seven gasoline and/or diesel buses, and they have built one or more large and modern garages to maintain and repair their equipment.

The overhead wiring at intersections, necessary for trolley coach operation, is very complicated and costly, and likewise the repairs to the same are very costly.

Windsor started in 1939 with eleven routes and they now have seventeen routes. Almost every route is changed somewhat every year due to the fast changing conditions in Windsor. Windsor jumped from a 90,000 population in 1939 to 125,000 in 1943.

London, Ontario, now has a population of 95,000 and sixty-three gas and diesel buses were taking complete care of their transportation in the year 1942.

STUDY THE FACTS

Considerable discussion has taken place in Calgary from time to time regarding the relative merits of gas and diesel bus versus the trolley coach. The Federated Automotive Industries desire a frank and open discussion on this matter. By knowing **all the facts** you are in a fairer position to judge what Calgary should plan for.

CITY BEAUTIFICATIONS

In considering this matter, the size of Calgary, its **narrow streets** and **future Town planning** are important factors. Furthermore any city under 200,000 population does not begin to have peak load problems such as larger cities. Do you Mr. Citizen, desire our streets cluttered up with a lot of poles and do you want double the ugly overhead wiring we now have?

CAPITAL OUTLAY

Gas and diesel buses require considerably less capital outlay than trolley coaches. As mentioned before, trolley coaches cost in the neighborhood of \$20,000.00 each and the overhead wires and poles cost approximately \$20,000.00 per mile for installation. Gas and diesel buses cost from \$9,000.00 to \$14,000.00 each and require no tracks and no cluttering up of overhead with a network of wires and poles.

Trolley coaches require four wires instead of two wires used by street cars. Steel poles are necessary to carry the extra overhead weight.

As a sample of the difference in the installation of trolley coaches versus gas or diesel, let us take the case of **Elbow Park alone**. To put trolley coaches into Elbow Park would necessitate the following costs:

TROLLEY COACH COST

2½ miles of wiring and poles at \$20,000.00 per mile (it cost Edmonton \$25,000.00 per mile)	\$ 50,000.00
Four trolley coaches (seating capacity 40 each) at a cost of \$20,000.00 each	80,000.00
Approximate cost of installation of trolley coaches into Elbow Park	\$130,000.00

GAS OR DIESEL BUS COST

To put gas buses into Elbow Park would cost as follows:	
Six gas buses (seating capacity 27 each) at \$9,000.00 each. Total Cost	\$ 54,000.00
Total Capital saving into Elbow Park, of gas buses as against trolley coaches	\$ 76,000.00

FLEXIBILITY

Trolley coaches require fixed routes, the same as the street cars. In case of fires, parades, accidents or other street obstructions, trolley coaches are tied up the same as street cars. (Calgary has had some recent experiences in this connection.) With flexible gas or diesel buses, routes can be changed at will. In a growing community changes are required from time to time.

Calgary has narrow streets and a bad bottle-neck on the corner of 8th Avenue and 1st Street West. Trolley coaches would not relieve this bottle-neck if they were all routed through the corner of 8th Avenue and 1st Street West. With gas or diesel buses, the bottle-neck could be eliminated by routing some of the buses on 9th Avenue, some on 8th Avenue and some on 7th Avenue.

A trolley coach weighs 21,000 lbs. plus pay load, as against the gasoline bus, weighing 10,000 lbs. plus pay load. A heavy vehicle requires heavy pavement to carry it and this is a matter that should be carefully gone into. In using the heavier vehicle many City roads would have to be reconstructed.

CANADIAN CITIES' EXPERIENCE

What is the experience of our Canadian Cities?

Montreal is the only city in Eastern Canada with trolley coaches. They purchased seven in 1936 and have purchased none since. Since 1936 the Tramway Company bought three hundred and forty-seven gas or diesel buses.

In Western Canada, there are only two cities with trolley coaches. Edmonton has in addition to its street cars, approximately twelve trolley coaches and thirteen gas and diesel buses. Winnipeg has twenty-two trolley coaches and one hundred and fifty-eight gas and diesel buses.

The following Canadian Cities have gone, or are going into gas and diesel buses exclusively: London, Brantford, Kitchener,

Peterborough, Oshawa, Woodstock, Scarbora Danforth, Sarnia, Scarbora Hollinger, Welland, St. John, Port Colborne, Sudbury, Sault Ste. Marie, Fort William, Kingston, Guelph, Moose Jaw, Lethbridge, Victoria.

Large Canadian Cities in the past ten years have been changing their equipment to gas and diesel buses quite extensively. This trend is expected to expand considerably during the post-war period. According to recent tabulations, large Canadian Cities now operate the following equipment:

	Street Cars	Gas. Buses	Diesel Buses	Trolley Coaches
Toronto	965	142	3	0
Hamilton	70	50	20	0
Montreal	1011	303	41	7
Ottawa	126	41	8	0
Winnipeg	215	157	1	22
Edmonton	75	5	8	12
Victoria	39	18	0	0
Vancouver	332	50	10	0
Quebec	76	78	7	0
Windsor	0	162	0	0

There are approximately forty-one trolley coaches operating in Canada. There are well over two thousand gas and diesel buses in Canada.

UNITED STATES EXPERIENCE

In the United States many cities, both large and small, are using gas and/or diesel buses exclusively.

The American Transit Association, 292 Madison Avenue, New York City, is one of the largest associations of its kind in the world and is the clearing house for information for the Transit Industry in the U.S.A. Their Transit Fact Book for 1944 gives the following information. You will note that the trend during the past ten years has been much in favour of motor buses as against all other forms of equipment.

TOTAL TRANSIT PASSENGER EQUIPMENT OWNED IN 1943 SHOWING TYPES OF VEHICLES AND THEIR DISTRIBUTION BY POPULATION GROUPS

Population Group	Railway Cars			Trolley Coaches	Motor Buses	Grand Total
	Surface	Subway & Elevated	Total			
Over 1,000,000	9,790	10,255	20,045	228	9,600	29,873
500,000 - 1,000,000	6,240	.....	6,240	473	6,050	12,763
250,000 - 500,000	4,660	.....	4,660	1,496	6,900	13,056
100,000 - 250,000	2,230	.....	2,230	699	8,150	11,079
50,000 - 100,000	1,640	.....	1,640	363	7,100	9,103
Less than 50,000	900	.....	900	243	5,700	6,843
Suburban and Other	1,790	.....	1,790	.....	3,600	5,390
TOTAL	27,250	10,255	37,505	3,502	47,100	88,107

You will note that in all the Cities of the United States in the same population group as Calgary, 50,000 to 100,000 population, there are now 363 trolley coaches, 1,640 street cars and 7,100 motor buses. In the population group 100,000 to 250,000, there are 699 trolley coaches, 2,230 surface street cars and 8,150 motor buses.

TEN YEAR RECORD OF TRANSIT PASSENGER EQUIPMENT OWNED IN THE UNITED STATES — 1934 to 1943

As of Dec. 31st	Railway Cars			Trolley Coaches	Motor Buses	Grand Total
	Surface	Subway & Elevated	Total			
1934	43,700	10,418	54,118	441	18,700	73,259
1935	40,050	10,416	50,466	578	20,700	71,744
1936	37,180	10,923	48,103	1,136	23,900	73,139
1937	34,180	11,032	45,212	1,655	27,500	74,367
1938	31,400	11,205	42,605	2,032	28,500	73,137
1939	29,320	11,052	40,372	2,184	32,600	75,156
1940	26,630	11,032	37,662	2,802	35,000	75,464
1941	27,092	10,578	37,670	3,029	39,300	79,999
1942	27,230	10,278	37,508	3,385	46,000	86,893
1943	27,250	10,255	37,505	3,502	47,100	88,107

PAST EXPERIENCE

The Calgary Municipal Railway accounts show that for ten months' period ending October 31st, 1943, our Truck and Roadway, Car Bodies and Trucks and Electric Equipment expenses cost us \$202,000.00, which was up \$55,000.00 over the same period in 1942.

Looking back on our street car system, this was a heavy liability for years longer than we would have liked. It has taken nearly thirty-five years to pay off this heavy indebtedness. A trolley coach investment or set-up would be a comparable waste as we would be tied up for fifteen years writing off the huge capital outlay in overhead wires, poles and switches together with the huge investment in trolley coaches.

In every city that gas and diesel buses have been installed, a much larger payload increase has resulted. Calgary should make its transportation a real asset for taxpayers and citizens. It is a utility which can reduce the mill rate substantially if organized on a business basis.

Calgary is in an excellent position to start a gradual change-over in our transportation system. One route at a time can be changed as we are able to procure the buses.

Gas or diesel buses can change their routes with the growth of population and development of new business areas. No tie-up is possible with gas or diesel buses due to fires, street accidents, or derailments, or broken overhead wires on account of snow, ice or

storm. Added reserve equipment can be ready and operating in any part of the City on a few minutes notice.

A study of the earnings per mile of the Calgary Street Railway in 1933 and in 1939 is convincing evidence that a large heavy vehicle cannot operate at a cost below those earnings. If the City of Calgary wishes to make its transportation system a continuously profitable enterprise, it is essential to get a vehicle with a low operating cost per mile with sufficient frequency of service to satisfy its patrons. It has been the experience of other cities that a more frequent service attracts additional patronage. The City of Buffalo states: "The rider, we learned, will not wait."

Phenomenal developments are taking place in internal combustion motors due to war construction. Let us in Calgary be in a position to adopt any new type of bus design or model as they develop. If gas, or diesel buses are adopted, we can always find an outlet in smaller cities, towns or villages for our used equipment at fair prices.

The Federated Automotive Industries invites and welcomes open discussion and debate on this matter that is so vital to our City's future.

CALGARY DESERVES MODERN TRANSPORTATION.
LET'S HAVE IT!

FEDERATED AUTOMOTIVE INDUSTRIES
CALGARY

An Organization contributing more than 15% of Calgary's total employment.